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# Automatically Identifying Teachers' Autonomy Support using Text Classification on Imbalanced Data

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## Abstract

Autonomy support is an interpersonal tone of support and understanding. Teachers' instructional behaviors with autonomy support facilitate students' inner motivational resources and enhance their engagement in learning activities. Identifying these behaviors is vital in terms of teaching effects on students' academic performance and behaviors. However, existing methods heavily rely on psychological questionnaires or observers, which are time consuming and difficult to apply in large scale teaching scenarios. In this work, we combine deep neural networks with psychology to achieve automatically identifying the behaviors. To this end, we create the first Chinese instructional behavior dataset for deep learning, and then construct a BERT-based network for modeling psychological features and identifying behaviors. Since frequencies of different behaviors are highly imbalanced, we further design a novel loss function to adaptively optimize training weights for each behavior. Extensive experiments verify the effectiveness of our method and explain how the behaviors are identified.